EXACT GLOBAL TEKNOLOGI

GEObit
Monitoring the earth

S200

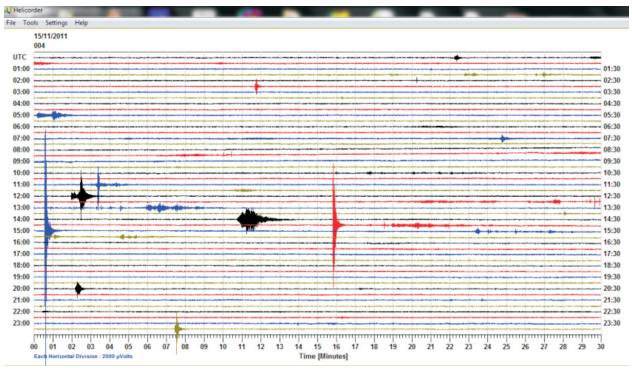
Short Period Ultra Sensitive Seismic Sensor

- 3 axis velocity sensor
- Low power consumption
- Borehole/surface type
- Only 50mm diameter
- More than 1km depth
- Smart elastic clamping
- Guiding wheels driver
- Wide input voltage range
- Build-in test line
- Wide response 1sec-240Hz
- High sensitivity 1500V/m/s
- Velocity feedback design
- Operation Range: -20 +70°C
- Micro-seismicity monitoring

FEATURES

The S-200 is a three-component velocity output seismic sensor. The unit is recommended for local micro-seismicity and fracturing seismicity monitoring. Three versions of this sensor type are available. One without electronics (S200A), one with preamplifier (S200B) and a third one with signal conditioner (S200C) based on the force-balance principle. This third version provides wider sensor response 1sec to 130Hz. The main characteristic of this sensor type is the high sensitivity combined with very low noise level. It is ideal for very small seismic events recording or fracturing events recording. The sensor must be combined with a very low noise/high dynamic range digitizer like the GEOthree or GEOsix units.

The default cable length of the sensor is approximately 20 meters. Selecting special cable, the length can be extended to more than one kilometer. The sensor electronics are housed into a back box thus the main sensor body is free of electronics. Any damage risk is dramatically minimized because of this topology. The borehole type unit is housed into an 60 or 80mm diameter casing. The sensor body is filled with special electro-insulated resin with excellent hydrolytic stability and therefore the sensor can be installed in deep boreholes. Corrosion environment is not a problem for this sensor. No mass-lock or centering is required that makes an easy connection with the digitizer. Sensitivity is 1500V/m/sec (differentially) if electronics are used, thus providing a very sensitive seismic sensor. Recording fracturing events from the surface is not an easy experiment, almost impossible using ordinary equipment. Efforts were concentrated on minimizing the noise floor, increasing the downhole gain and the sensor sensitivity. This sensor uses double geophones per axis so it meets all the requirements of gain and noise levels and its sensitivity becomes double of using a single sensing element per axis.



INSTRUMENT SPECIFICATIONS

MODEL S200A (without electronics)

Number of channels	3channels, Vertical, North-South, East-West
Channel Resistance	6800 OHms
Sensitivity	176 V/m/s
Natural Frequency	4.5Hz (10Hz, 14Hz, 28Hz, 35Hz under request)
Open circuitdamping	0.76
Cable length	More than 1km
Size	460mm length, 60mm diameter
Weigh (geophone enclosure)	3400g

MODEL S200B (with preamplifier)

Number of channels	3channels, Vertical, North-South, East-West
Channel Resistance	500 OHms
Sensitivity	1500 V/m/s
Natural Frequency	4.5Hz (10Hz, 14Hz, 28Hz, 35Hz under request)
Power	12Vdc, 41mA (0.49W)
Cable length	More than 1km
Size	460mm length, 60mm diameter
Weigh (geophone enclosure)	3400g

MODEL S200C (with signal conditioning electronics - bandwidth extended)

Number of channels	3channels, Vertical, North-South, East-West
Channel Resistance	500 OHms
Sensitivity	1500 V/m/s
Natural Frequency	1Hz (0.5Hz, 0.2Hz under request)
Power	12Vdc, 43mA (0.49W)
Cable length	More than 1km
Size	460mm length, 80mm diameter
Weigh (geophone enclosure)	3400g

ALL MODELS GENERAL CHARACTERISTICS

Mass lock, centering	Not required
Temperature range	-20 to +70°C
Humidity	100%, IP68 enclosure, resin filled
Submersible	>1000 meters

RESINE SPECIFICATIONS (+stable, -unstable)

Water +

Potassium hydroxide 5% +

Sodium Hydroxide 5% +

Salt water 20% +

Domestic Dedergents +

Sulfuric acid 5% +

Temperature -40 to +100

Hydrocholic acid 5% +

Unleaded fuel +

Diesel Fuel +

Xylene +

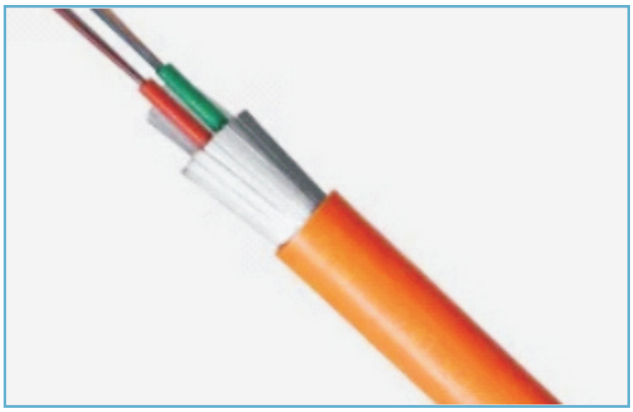
DMSO -

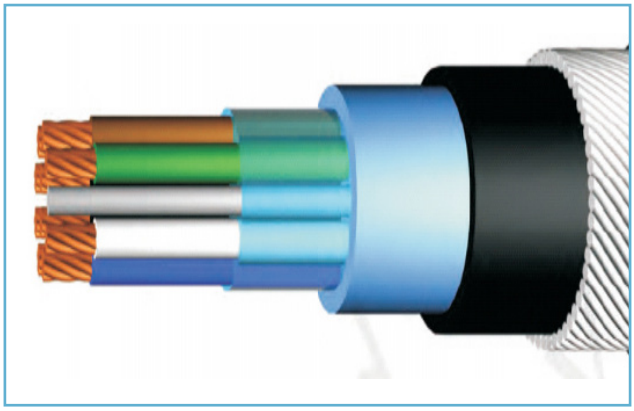
N-Methyl pyrrolidone -

Solid 100%

KEVLAR SEISMIC CABLE

Conductor	6*0.32 tinned cooper DCR<36Ohms
Insulation	HDPE O.D 1.5mm
Twisted	Red/Black, Blue/White, Red/blue
Shield	Tinned Copper Braided 16x8x0.1
Strength	Kevlar, >350kg
Jacket	TPU85A, OD 10mm
Color	Orange, Yellow
Weight/km	160kg



STEEL ARMOURED SEISMIC CABLE

Conductor	2x5, 0.5mm2
Insulation	Individually screened conductors
Twisted	2x5 conductors
Shield	PVC bedding, galvanized steel wire armour
Strength	Steel, >350kg
Jacket	PVC 20mm
Color	Black
Weight/km	730kg